

# THE REGION AND PARK

Edge of great Kobuk Sand Dunes.





## BRIEF DESCRIPTION OF THE PARK

The boundaries of Kobuk Valley National Park run along the ridges of a set of mountains that form a circle. These mountains define and enclose the Kobuk Valley. The Kobuk River cuts across the southern third of this circle.

The encircling mountains can be seen from the river. The ring of mountains to the north, west, and east are occasionally broken by sharp peaks. These are the Baird Mountains, the western extension of the Brooks Range. In the Kobuk Valley the mountains are more gentle and rounded than farther to the east in the central Brooks Range. To the south the Waring Mountains are yet lower and gentler.

The Kobuk River begins in the central Brooks Range. In the river's mid-section, as it passes through the Kobuk Valley, it is wide, slow moving, and clear. Its banks and bottom are sandy. Lively clearwater tributaries to the Kobuk have their headwaters in the Baird Mountains. These are the Akillik, the Hunt, the Kaliguricheark, the Tutuksuk, the Salmon, and the Kallarichuk. After tumbling over rocky bottoms in the mountains, they slow as they cross the nearly level floor of the Kobuk Valley. Their waters take on a slight brownish color from the peat and other organic matter that overlay the valley floor. They enter the Kobuk through low breaches in the sandy banks. Only slow moving creeks enter the Kobuk from the south.

Trees approach their northern limit in the Kobuk Valley, where forest and tundra meet. Vast expanses of tundra cover the valley in some locations, while forests cover other better-drained portions of the valley. In some locations sparse stands of spruce, birch, and poplar grow above a thick and brittle ground cover of light-colored lichens, creating a bright and easily traversed forest.

Sand created by the grinding of glaciers has been carried to the Kobuk Valley by winds and water. Large sand dunes lie on the south side of the Kobuk River. These are the Great Kobuk Sand Dunes, the Little Kobuk Sand Dunes, and the Hunt River Dunes. Older, vegetated dunes cover much of the southern portion of the valley.

Caribou pass through the valley on their spring and fall migrations. In the spring, caribou come over the Waring Mountains heading north, cross the Kobuk River, and move into north-south passes in the Baird Mountains. They continue on to the North Slope for calving. In the fall the migration is reversed. Caribou cross the valley in such great numbers and on such regular routes that they form trails that are obvious from the air and ground. Many caribou cross the Kobuk River at Onion Portage on the eastern side of the valley.

Native people have lived in the Kobuk Valley for at least 12,500 years. This human use is best recorded at the extensive archeological sites at Onion Portage. Each fall for thousands of years, people have waited at Onion Portage for the caribou to arrive. Caribou trails pass through the middle of this cluster of housepits and other remains of these native peoples. Numerous other prehistoric villages and campsites have been discovered in the Kobuk Valley.

Union Portage is today the most used site for the hunting of caribou by the people of northwest Alaska. Fish camps are set up along the Kobuk River during the summer to net salmon, whitefish, the prized sheefish, and other fish. Local people continue to depend on the resources of the Kobuk Valley for their physical and spiritual well-being.

## THE REGION

Kobuk Valley National Park is in northwest Alaska north of the Arctic Circle, about 350 miles west-northwest of Fairbanks and 75 miles east of Kotzebue.

## Access

The primary means of access to northwest Alaska is aircraft. No roads or other forms of surface transportation link the region with the rest of the state, nor are the villages of the region connected by road. Scheduled commercial flights are available from Anchorage to Kotzebue, and from Fairbanks to Ambler and Shungnak. Connecting flights are available to all the villages in the region.

Other means of travel within the region include private and charter aircraft, motorboats, snowmachines, off-road vehicles, and dogsleds. During the ice-free months, boats can be taken from Kotzebue to the five villages on the Kobuk River. Marked winter travel routes exist between the villages in the region and are used by snowmachines and dogsleds. All of these forms of travel, but especially flying, are weather dependent.

## Climate

Northwest Alaska has long, cold winters and short, generally cool summers. While the coastline has a maritime climate, the interior portion of the region, including the Noatak and Kobuk river drainages, experiences a more continental climate. The interior has a greater seasonal variation in temperatures and precipitation than do the coastal areas.

The Bering and Chukchi seas provide the primary source of precipitation to northwest Alaska during the summer months, when the waters are ice free and prevailing winds blow from the east across the landmass, and lower precipitation levels occur.

Coastal and lower elevation areas in the southwest portion of the region receive approximately 10 inches of precipitation annually. Higher inland areas to the east receive 25 to 30 inches of precipitation. Snowfall ranges between 45 inches annually in the southwest to more than 100 inches at higher elevations in the east.

Freeze-up and break-up dates vary by individual water body. These are important dates because rivers and lakes are major transportation corridors. Freezing of rivers generally occurs from early to mid-October and breakup occurs in mid to late May. At Kotzebue freeze-up occurs about October 23 and breakup about May 31. At Kiana, on the Kobuk River, these events occur on about October 18 and May 18, respectively.



## VICINITY

### Kobuk Valley National Park

United States Department of the Interior  
National Park Service

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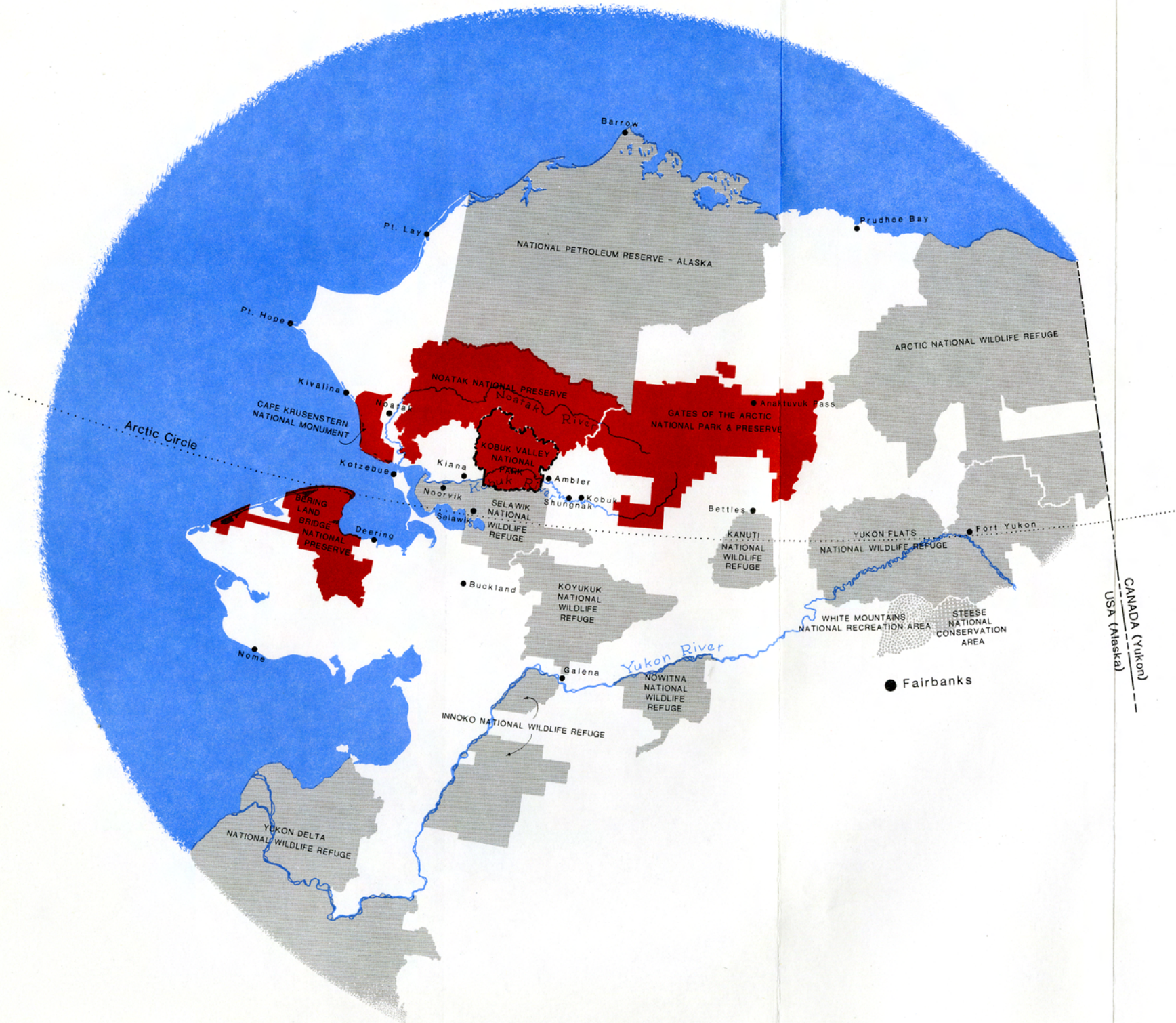




Table 1  
Temperatures and Precipitation of Northwest Alaska

<u>Temperatures (Degrees Fahrenheit)</u>				
	<u>July Mean Temperature</u>	<u>January Mean Temperature</u>	<u>Extremes High Low</u>	<u>Annual Mean Temperature</u>
Kotzebue	53.2	-2.5	85 -52	21.1
Noorvik	54.1	-6.9	87 -53	22.2
Kobuk	57.5	-8.7	92 -68	21.8

<u>Precipitation (Inches)</u>			
	<u>July Mean Precipitation</u>	<u>January Mean Precipitation</u>	<u>Annual Mean Precipitation</u>
Kotzebue	1.44	0.35	8.65
Noorvik	2.42	-	16.15
Kobuk	3.22	0.61	16.73

Source: Arctic Environmental Information Data Center; Climatological Summary.

Heavy summer precipitation within inland valleys can cause flooding. Erosion of riverbanks and soils, slumping of mountainsides, and increased navigability of some tributaries may result.

#### Landownership

The park is bordered on two sides by other federally managed lands. To the north is Noatak National Preserve, a 6.5 million-acre NPS unit encompassing most of the Noatak River drainage. Human use of the preserve is focused on the river. River floating and subsistence and sport fishing and hunting are common activities.

The Selawik National Wildlife Refuge shares the park's southern boundary. This 2,150,000-acre refuge was established by ANILCA for the conservation of the western arctic caribou herd, waterfowl, shorebirds, migratory birds, salmon, sheefish, and other fish and wildlife species.

Lands to the east and west of the park are a mix of native and state-owned and selected lands and lands administered by the Bureau of Land Management (BLM). BLM lands encompass most of the upper and middle portions of the Squirrel River drainage and border most of the west side of the park.

Nearby villages include Kiana, Ambler, Shungnak, and Kobuk, all of which are members of the NANA Regional Corporation and have extensive lands and

selections within the region. Some lands selected and/or conveyed to NANA lie within and along the park's eastern and western boundaries.

State lands lie to the east of the park and share a short segment of the park's eastern boundary. Most of these state lands are in the headwaters areas of the Redstone and Ambler river drainages, although two townships of state land are nearer the Kobuk River, in the Cosmos Hills, an area of known mineral resources and active mineral exploration.

#### Land Use

Land uses in northwest Alaska include subsistence activities, sport hunting and fishing, and other recreational activities, trapping, travel, seasonal and year-round residences, reindeer grazing, and mineral exploration and development. Most of these uses occur along the major stream drainages. Villages in the region are located on the coast or on rivers. Lands in the villages are devoted to residential and industrial uses. Grazing of reindeer is the most widespread use of the southern portion of the region, including the Seward Peninsula (AEIDC 1975). There are isolated areas of mineral exploration and development in the region. The Red Dog mineral deposits lie west of Noatak National Preserve, and the Ambler mining district is east of Kobuk Valley National Park. Placer gold mining is occurring on a few streams in the region. No mining is occurring within Kobuk Valley National Park. Some small-scale local gathering of coal occurs at outcrops along the Kobuk River in the park. Mineral leasing is occurring on lands administered by the Bureau of Land Management in the Squirrel River watershed, immediately to the west of Kobuk Valley National Park.

#### Population

Northwest Alaska, an area of approximately 24,320,000 acres, supports 11 communities with an estimated 1983 population of 6,043. Of these residents about 85 percent are native, primarily Inupiat Eskimo, and 14 percent are Caucasian.

About 40 percent of the region's residents live in Kotzebue. Kotzebue had a 1983 population of 2,981, with a larger proportion of white residents (23 percent) than the outlying villages. Population figures for the northwest communities are shown in table 2.

The process of aggregation into villages is recent in the history of the region. In 1910 less than half the population lived in villages, in 1920 the numbers increased to 75 percent of the residents, and by 1950 all but 4 percent of the region's inhabitants lived in established villages (Darbyshire & Associates 1982).

Three major factors have influenced the population history of northwest Alaska: health, economic opportunity, and cultural persistence. These factors may cause people to move between the villages and Kotzebue or to leave the region. A greater than 200 percent increase in the population of Kotzebue from 1950 to 1960 is attributed largely to immigration from outlying villages.



Table 2  
Northwest Alaska Population, 1970-1983

	<u>1970</u>	<u>1980</u>	<u>Percentage Change 1970-1980</u>	<u>1983<sup>a</sup></u>	<u>Percentage Change 1980-1983</u>
State	302,583	401,851	+32.8	--	--
Region	4,048	4,831	+18.4	--	--
Ambler	176	192	+ 9.1	281 <sup>b</sup>	+46.4
Buckland	104	177	+70.2	219 <sup>b</sup>	+23.7
Deering	85	150	+76.5	158	+ 5.3
Kiana	278	345	+24.1	363	+ 5.2
Kivalina	188	241	+28.2	272 <sup>b</sup>	+12.9
Kobuk	165	62	-62.4	86 <sup>b</sup>	+38.7
Kotzebue	1,696	2,054	+21.1	2,981 <sup>b</sup>	+45.1
Noatak	293	273	- 6.8	--	--
Noorvik	462	492	+ 6.5	517	+ 5.1
Selawik	429	361	-15.8	601	+66.5
Shungnak	165	202	+22.4	292 <sup>b</sup>	+44.6

Source: 1980 Census of Population, vol. 1, chapter A, part 3, Alaska (PC80-1-A3). U.S. Department of Commerce 1981.

<sup>a</sup>Regional Education Attendance Areas Map

<sup>b</sup>Local census

The overall trend in the regional population is growth. Two sources (Darbyshire & Associates 1982 and Dames & Moore 1983) forecast that the regional population will continue to grow, increasing 30 to 34 percent between 1980 and 1990, or at an average annual rate of 3 percent. The growth rate for Kotzebue is expected to be even greater than that of the entire region.

### Economy

Subsistence uses are defined in ANILCA as "the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of nonedible byproducts of fish and wildlife resources taken for personal or family consumption; and for customary trade." Preservation of a subsistence lifestyle is a primary goal of the people of northwest Alaska (Dames & Moore 1983).

The economy of northwest Alaska may be characterized as a mixture of subsistence, wage employment, and other forms of income. Nome and Kotzebue serve as regional centers for government and as service and distribution centers. Rural residents rely extensively on subsistence activities to meet dietary and cultural needs. An average of 45 pounds of renewable resources were harvested by each resident each year within the NANA corporation boundaries, which is most of northwest Alaska (Patterson 1974). A 1979 survey of 311 native households in the NANA Region documented that subsistence is an important part of the local economy. When residents were asked how much of their food was obtained from subsistence, the responses were as follows:

most	35 percent
one-half	24 percent
some	35 percent
and none	6 percent

The survey also showed that as income increased, no less time was spent on subsistence activities (Dames & Moore 1983).

The region's cash economy is made up of 13 industries. These include renewable resource harvest, mining and exploration, construction, household manufacturing, transportation, warehousing and distribution, communications and private utilities, trade and private services, finance, real estate, quasi-public and nonprofit organizations, local and regional governments, state agencies and services, and federal agencies and services (Darbyshire and Associates 1982).

Local and regional governments are the largest dollar contributors to the economic base of the region and of Kotzebue. Transfer payments (payments made directly to households for public assistance, GI bill benefits, pensions, etc.) and income brought home by people working outside the region are together the largest contributors to the economic base of the outlying villages. Ninety percent of the region's income is directly or indirectly generated as a result of government spending, with over 40 percent derived from federal expenditures. The most important private sector economic activities are construction, fishing, transportation, and communication.

Income and employment rates for northwest Alaska are well below that of the state. Income and employment levels of the outlying villages are lower than those of Kotzebue. In 1980 the average per capita income for the region was \$7,225, whereas statewide it was \$12,633. The average annual unemployment rate for the region (Kobuk Division) in 1981 was 10.5 percent (U.S. Department of Labor 1982), compared to a state rate of 9.4 percent (Dames & Moore 1983).

A notable characteristic of employment in the region is its seasonality. A 1978 survey (Darbyshire & Associates 1982) showed that 54 percent of the region's adults had been employed in the past 12 months, and of these 44 percent had worked fewer than six months. Some of the residents wish to work wage jobs only part of the year so they can participate in subsistence activities during the appropriate seasons. The highest rates of unemployment

occur in the late spring and June, and the lowest are in September, when construction and school-related jobs are available.

Kotzebue is the center for services, trade, and transport in the region. Sixty-four percent of the region's employment opportunities are found in Kotzebue, even though it contains only 40 percent of the population. One-third of this Kotzebue-based employment and income is directly attributable to the provision of services for the outlying villages.

The overall net growth in employment is expected to be very small over the next 10 years. Although the average regional income increased through the 1970s, two recent studies predict a leveling of the economy at 1980 figures (Darbyshire & Associates 1982 and Dames & Moore 1983). These projections include estimated employment at the Red Dog mining development.

## THE PARK

### Natural Resources

Geology. Three general landscape types exist within Kobuk Valley National Park: the Baird Mountains, the Waring Mountains, and the Kobuk Valley lowlands (floodplain and terraces).

The Baird Mountains are a western extension of the Brooks Range. The Baird Mountains separate the Noatak and Kobuk river drainages. They rise abruptly from the lowland on the south to heights of 2,500 to 4,760 feet. The Baird Mountains consist primarily of Paleozoic sedimentary and older metamorphosed rocks that have been thrust-faulted and folded. Rock types are shale, conglomerate, sandstone, and metamorphosed limestone. On the southern flanks of the Baird Mountains, within the park, sediments metamorphosed into phyllite and schist are found. Jurassic to Permian volcanic and intrusive rocks are also present.

The Waring Mountains, to the south of the Kobuk River, are broadly folded, northeast-trending mountains primarily of Cretaceous sedimentary rock. Rock types include graywacke, sandstone, siltstone, shale, and conglomerate. The peaks of this range are generally less than 2,000 feet high.

The Kobuk River runs through the lowland between the Baird Mountains and Waring Mountains. This area is largely covered by glacial drift and alluvial deposits, including clayey till, outwash gravel, sand, and silt. The underlying bedrock of the lowlands is composed of Cretaceous sedimentary rocks such as shale, sandstone, siltstone, conglomerate, and graywacke.

Although there are currently no glaciers within the park, at least five major Pleistocene glaciations have been identified in northwest Alaska. The greatest of these glacial events occurred during Illinoian time when glaciers extended west to the Baldwin Peninsula. The two earlier glaciations, the Kobuk and Ambler glaciations, covered large areas of the Kobuk and Selawik valleys and the drainages of the Baird Mountains. The three later glaciations were restricted to portions of the Schwatka Mountains east of the park.

During the interglacial period between the Kobuk and Ambler glaciations, glacio-fluvial deposits on river bars and outwash plains were worked by strong easterly winds. The down-valley movement of large volumes of silt and sand created dune fields, which cover an area of approximately 200,000 acres. Most of this dune area is currently vegetated by tundra and forest, except for the three active dunes--the Great Kobuk Sand Dunes the Little Kobuk Sand Dunes, and the Hunt River Dunes. These active dunes cover approximately 20,500 acres. The Great Kobuk Sand Dunes lie less than 2 miles south of the Kobuk River, immediately east of Kavet Creek. The Little Kobuk Sand Dunes lie about 5 miles south of the Kobuk River in the southeastern portion of the park. The Hunt River Dunes are located on the south bank of the Kobuk River across from the mouth of the Hunt River.

The Great Kobuk Sand Dunes display a complete and readily observable sequence of dune development, from the U-shaped, concave dunes with vegetative cover in the eastern portion of the field, to the crescent-shaped, unvegetated brachan dunes, which stand over 100 feet high, in the western portion. It is the largest active dune field in arctic North America.

Another geological feature in the park is permafrost. It consists of soil, rock, or other earth materials at temperatures of 32 degrees Fahrenheit or colder for two or more consecutive years. Lowland areas in the Kobuk River drainage are underlain by discontinuous permafrost with a maximum depth to its base of 390 feet. The Baird Mountains to the north are underlain by continuous permafrost, while the Waring Mountains to the south have thin to moderately thick permafrost. A variety of permafrost features are evident within the park. These features can be collectively referred to as "thermokarst topography," and include thaw lakes, ice wedges, polygons, pingos, frost mounds, and solifluction lobes.

Mineral terranes are geologic environments containing mineral deposits. Mineral terranes are known to exist, or are suspected to exist, within large portions of the Brooks Range. Numerous large mineral deposits occur about 30 miles to the east of the park in the vicinity of Cosmos Mountain and the Schwatka Mountains. Mineral terranes occur in the park through most of the Baird Mountains. The Salmon and Tutuksuk River watersheds are reported to have unusual (anomalous) concentrations of copper, lead, and zinc. A mineral terrane thought to be favorable for the occurrence of nickel, platinum and chromium deposits, runs along the base of the Baird Mountains, from about the center of the park, east along the base of the Schwatka Mountains. Despite the known or suspected mineral terranes that occur within the park, no significant mineral deposits have been identified in the park (AEIDC 1979 and 1982).

Jade is mined on the southern slopes of the Jade Mountains to the east of the park. Jade boulders are removed from the surface of talus slopes and are transported during the winter on sleds to the Kobuk River, where they are stockpiled to be taken by barge to Kotzebue after breakup. The boulders are cut and the jade is fashioned into jewelry and other items in Kotzebue.

Thin seams of subbituminous and bituminous coal (generally less than 2 feet thick) occur along the Kobuk River, between the village of Kiana and the Pah River, 60 miles east of the park. Small outcrops of coal can be seen along



# PALEONTOLOGY

( FOSSIL COLLECTION SITES )

- SITE 1. CONODONTS / RADIOLARIANS
- SITE 2. CONODONTS / RADIOLARIANS
- SITE 3. CONODONTS / RADIOLARIANS
- SITE 4. BRACHIOPODS
- SITE 5. CONODONTS
- SITE 6. STROMATOPOROIDS / CORALS
- SITE 7. CONODONTS
- SITE 8. PLANTS (MESOZOIC)
- SITE 9. CONODONTS
- SITE 10. ECHINODERMS / BRACHIOPODS / SPONGE
- SITE 11. CORALS / BRACHIOPODS / CONODONTS
- SITE 12. RADIOLARIANS / PELECYPODS / CONODONTS
- SITE 13. ECHINODERMS / CORALS / BRACHIOPODS

SOURCE: (FOR SITES 1-13) MF-1441, GEOLOGY OF THE SIKHTANNEYAK MOUNTAINS AND MT. OPHIOLITE, HOWARD PASS QUAD, BY STEVEN W. NELSON AND WILLIS H. NELSON, 1982.

- SITE 14. CORALS (MISSISSIPPIAN)
- SITE 15. CORALS (MISSISSIPPIAN)
- SITE 16. CORALS (MISSISSIPPIAN)
- SITE 17. CORALS (MISSISSIPPIAN)
- SITE 18. CORALS, STROMATOPOROIDS, GASTROPODS
- SITE 19. CORALS, STROMATOPOROIDS, GASTROPODS
- SITE 20. CORALS, STROMATOPOROIDS, GASTROPODS

SOURCE: (FOR SITES 14-20) 1554, REGIONAL GEOLOGIC MAP OF THE SHUNGNAK AND SOUTHERN PART OF THE AMBLER RIVER, BY W.W. PATTON, JR., T.P. MILLER AND IRVIN L. TAILLEUR, 1968.



SITE LOCATIONS



OTHER MAPPED SITES

OTHER UNMAPPED PALEONTOLOGICAL RESOURCES OCCUR IN THESE PARKS.

# GEOLOGY & PALEONTOLOGY

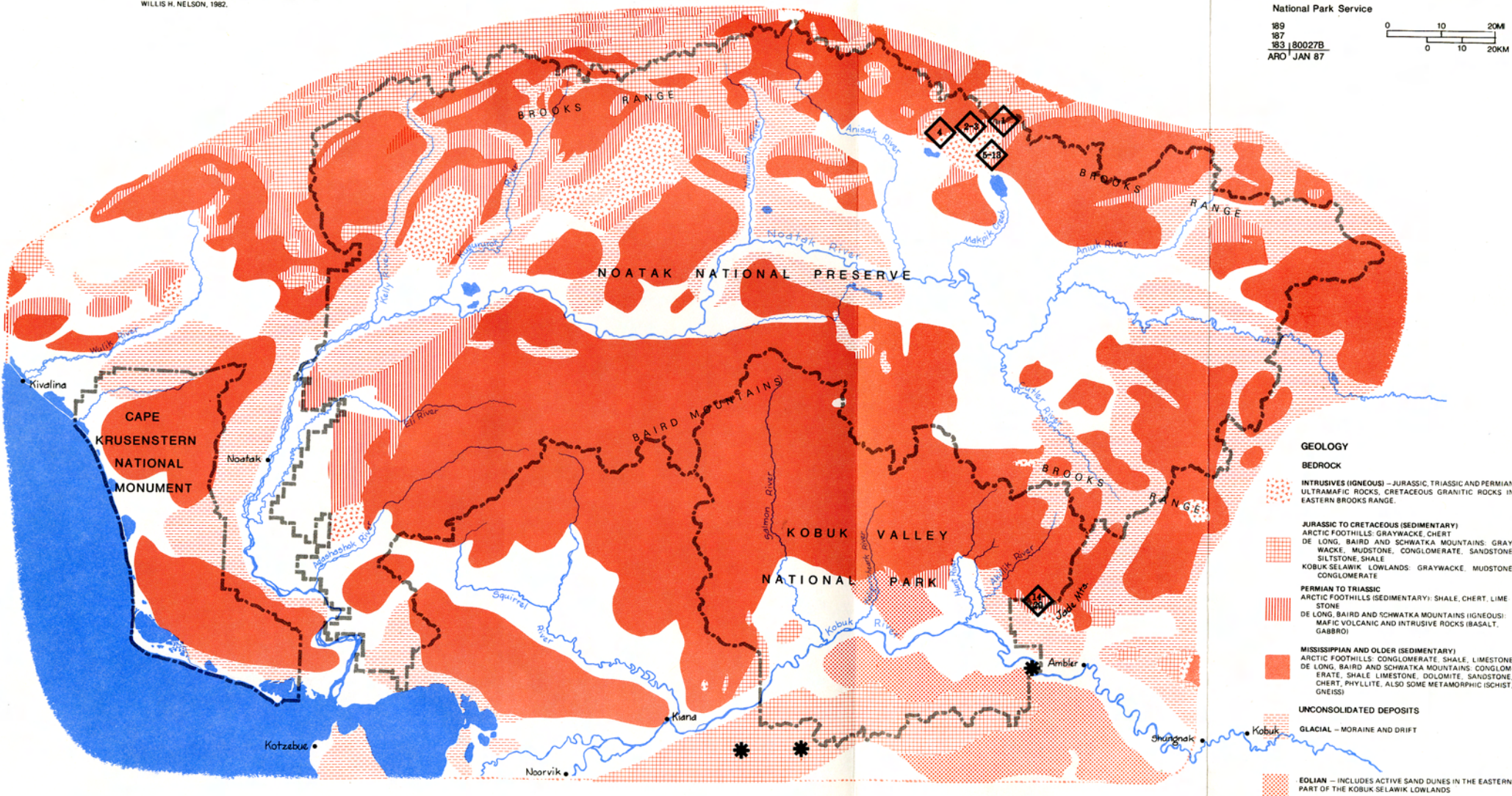
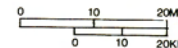
Cape Krusenstern  
National Monument

Kobuk Valley National Park

Noatak National Preserve

United States Department of the Interior  
National Park Service

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## GEOLOGY

### BEDROCK

INTRUSIVES (IGNEOUS) - JURASSIC, TRIASSIC AND PERMIAN ULTRAMAFIC ROCKS, CRETACEOUS GRANITIC ROCKS IN EASTERN BROOKS RANGE.

JURASSIC TO CRETACEOUS (SEDIMENTARY)  
ARCTIC FOOTHILLS: GRAYWACKE, CHERT  
DE LONG, BAIRD AND SCHWATKA MOUNTAINS: GRAY WACKE, MUDSTONE, CONGLOMERATE, SANDSTONE, SILTSTONE, SHALE  
KOBUK SELAWIK LOWLANDS: GRAYWACKE, MUDSTONE, CONGLOMERATE

PERMIAN TO TRIASSIC  
ARCTIC FOOTHILLS (SEDIMENTARY): SHALE, CHERT, LIME STONE  
DE LONG, BAIRD AND SCHWATKA MOUNTAINS (IGNEOUS): MAFIC VOLCANIC AND INTRUSIVE ROCKS (BASALT, GABBRO)

MISSISSIPPIAN AND OLDER (SEDIMENTARY)  
ARCTIC FOOTHILLS: CONGLOMERATE, SHALE, LIMESTONE  
DE LONG, BAIRD AND SCHWATKA MOUNTAINS: CONGLOMERATE, SHALE, LIMESTONE, DOLOMITE, SANDSTONE, CHERT, PHYLLITE, ALSO SOME METAMORPHIC (SCHIST, GNEISS)

### UNCONSOLIDATED DEPOSITS

GLACIAL - MORANE AND DRIFT

EDLIAN - INCLUDES ACTIVE SAND DUNES IN THE EASTERN PART OF THE KOBUK SELAWIK LOWLANDS

FLUVIAL/COASTAL/UNDIFFERENTIATED DEPOSITS:  
ALLUVIAL (FLUVIAL) - FLOODPLAIN, TERRACE AND ALLUVIAL FAN DEPOSITS ASSOCIATED WITH STREAMS AND RIVERS  
COASTAL - OLDER INTERLAYED ALLUVIAL AND MARINE SEDIMENTS AND MODERN BEACHES, DELTAS, BARS AND SPITS

SOURCE: ALASKA REGIONAL PROFILES - NORTHWEST REGION, BY LIDIA L. SELKREGG FOR STATE OF ALASKA, UNIVERSITY OF ALASKA, ARCTIC ENVIRONMENTAL INFORMATION AND DATA CENTER, ANCHORAGE, AK, NO DATE, P. 63.



the Kobuk River between Trinity Creek (4 miles downstream from the park's western boundary) and the Kallarichuk River within the park. Coal deposits have also been reported along a tributary at the Kallarichuk River. Low petroleum potential exists within the park.

Paleontological resources are fossils (remains or traces of prehistoric animals or plants that have been preserved in the earth's crust). In northwest Alaska both microfossils (for example, pollen and spores) and megafossils are found, and both provide valuable scientific information. Perhaps the most interesting fossils to the general public in northwest Alaska are the bones of Pleistocene mammals, such as mammoths, mastodons, and extinct bison. Bones and tusks have been found along the Noatak and Kobuk rivers and are on display at museums in the state. These fossils are exposed by erosion along stream-cut banks and may be lost as erosion continues and the river washes them away.

Soils. Soils on the higher slopes of the Baird Mountains consist of thin layers of highly gravelly and stony loam. Where soils accumulate in protected pockets on steeper mountain slopes, they support mosses, lichens, and some dwarf shrubs.

Soils on the broad lowlands within the park are generally poorly drained, with a peaty surface layer of variable depth and a shallow depth to permafrost. Texture within these soils varies from very gravelly to sandy or clayey loam. Erosion potential is moderate.

An area of approximately 200,000 acres south of the Kobuk River is composed of well-drained, thin, strongly acidic soils. These are vegetated and unvegetated sand dune fields. The unvegetated Great Kobuk and Little Kobuk sand dune fields are comparable in soil type and texture to the vegetated portions of the dune fields, but they are rated as having high erosion potential due to scarcity of vegetation.

The floodplains of the Kobuk River and its tributaries, including the Hunt, Akillik, and Salmon rivers, are characterized by silty and sandy sediments and gravel.

Soil erosion along the banks of the Kobuk River can be significant. Most bank erosion occurs during spring breakup when high volumes of water and ice scour the riverbanks and carry sediment downstream. In places where river water comes into contact with permafrost in river banks, thermal erosion can occur. Additional erosion can occur during high precipitation in the summer months. Along the Kobuk River evidence of the erosion and slumping of sandy riverbanks is readily observable at numerous locations.

Hydrology. The Kobuk and Noatak rivers are the largest rivers within northwest Alaska and together drain an area of 24,577 square miles. The fish, wildlife, and people of the region depend on the quality and quantity of these rivers. The Kobuk River drains 11,980 square miles and has an estimated annual average flow of 15,450 cubic feet per second. The river is 347 miles long and 1,000 to 1,500 feet wide in its lower and middle reaches. It is clear, except at the highest water stage, and has a generally sandy or gravelly bottom. The river's speed is between 3 and 5 miles per hour. The



river is 50 feet above sea level at the eastern boundary of Kobuk Valley National Park. Meander scrolls, oxbow bends, and sloughs are abundant along the river's course.

Long periods of summer rain can cause flooding on the Kobuk and its tributaries. Most flooding occurs in May and early June during the spring breakup. At this time waters from melting snow overflows ice in the stream channels. The downstream movement of ice is sometimes interrupted by ice jams, which result in additional flooding. The floodplain of the Kobuk River varies from 1 to 8 miles wide. The hazards of ice jamming and stream overflow at the villages of Ambler, Kiana, and Noorvik are rated as low, while the hazard rating for the village of Kobuk is high (Darbyshire 1983).

The major tributaries of the Kobuk River within the park are the Kallarichuk, Salmon, Tutuksuk, Kaliguricheark, Hunt, and Akillik rivers. All have their headwaters in the Baird Mountains, and all are entirely undeveloped. The Salmon has been designated as a wild river in the wild and scenic river system; it drains 660 square miles. The Tutuksuk, east of the Salmon River, is 30 miles long and drains 350 square miles. The Hunt River, in the eastern portion of the park, is 40 miles long and drains 615 square miles.

Numerous small lakes and ponds lie within the Kobuk River watershed, particularly in the lowlands along the river. Some ponds and lakes formed as detached oxbows of the meandering river, while others formed where permafrost has melted and caused depressions. Some small lakes are on the north slopes of the Waring Mountains, and some cirque lakes are in the Baird Mountains.

The chemical quality of surface waters within northwest Alaska has received only limited study. Total dissolved solids in most streams in the region are generally less than 200 milligrams per liter. The Kobuk River at Kiana contains less than 250 milligrams per liter of dissolved solids--magnesium and bicarbonate are the most prevalent dissolved solids, and calcium and chloride are found in smaller quantities (AEIDC 1975). The concentrations of dissolved solids increase from the headwaters of the Kobuk to its mouth at the Hotham Inlet.

The free-flowing waters of northwest Alaska have the lowest yield of sediment in the state, due largely to low topographic relief, lack of glaciers, low levels of runoff, and the stabilizing effect of permafrost on soils.

Current community water sources in the region include wells drilled into valley alluvium or bedrock, springs, and surface waters from lakes and streams. The community of Kotzebue stores up to 1.5 million gallons of water for community consumption. The village of Kiana has a community well and a 20,000-gallon storage tank with chlorination, fluoridation, and a community distribution system. Both river and well sources are used at Ambler, where there is a 30,000-gallon storage tank (AEIDC 1975).

Fish and Wildlife. Caribou of the western arctic caribou herd today range over the entire region. The herd declined from a population of at least 242,000 in 1970 to an estimated 75,000 in 1976. Since that time the herd has increased in size and was estimated to be 171,699 in 1982 (ADF&G 1984).

The 1984 herd size was projected to be approximately 200,000 (J. Davis, pers. comm. 1984).

The summer range and calving ground of the western arctic caribou herd lies north of the DeLong Mountains and Brooks Range and west to the Chukchi Sea. Calving usually occurs between May 25 and June 25. In August most caribou in the herd begin a southerly migration. Crossing of the Noatak River usually begins in mid-August and crossing the Kobuk River begins in late August. The greatest numbers of caribou generally move across the Kobuk Valley from mid-September until early October. The Hunt River valley within the park and the Mileut Creek and Redstone River drainages (to the east of the park) are usually primary corridors for migration through the Baird Mountains, while the Salmon and Squirrel river drainages are used to a lesser extent in most years. Caribou also migrate along the shore of the Chukchi Sea and to the east of the park through other north-south passes in the Brooks Range (ADF&G 1983). In most years a large percentage of the herd crosses the Kobuk River at and around Onion Portage on the eastern side of the park (D. James, pers. comm. 1984). Onion Portage is a traditional fall caribou hunting area for residents of the region.

Caribou continue toward winter range to the south. The rut occurs en route to the winter range. Wintering areas vary from year to year, however the Selawik Hills-Buckland River area and the headwaters of the Selawik River are primary wintering areas for the western arctic caribou herd.

The spring migration begins in March. At this time the main body of the herd moves north toward the arctic coastal plain. Most of the spring crossing of the Kobuk River occurs near Onion Portage. Movement northward from the Kobuk River funnels into the Hunt, Akillik, Miluet, Redstone, and Ambler river valleys in the Baird Mountains and then into the Cutler River drainage in the Noatak basin. Movement continues northward, crossing the Noatak River and paralleling the Anisak, Kelly, Kugururok, and Nimiuktuk rivers (ADF&G 1983).

Moose are found within major drainages of northwest Alaska. Moose were scarce within the region until about 50 years ago. The population has steadily increased in recent years, and current estimates for the Kobuk River drainage are 1500 animals (ADF&G 1982).

The primary fall moose range is the willow habitat above tree line, and the primary winter moose range in the park is along the Kobuk River. Willow, birch, and aspen twigs are the main food of moose at these times. Summer range is more widespread. The annual reported harvest of moose for the entire northwest Alaska region (game management unit 23) for the 1982-83 hunting season was 128 moose, although the actual harvest was higher (ADF&G 1983).

Dall sheep are present in the higher elevations in the Brooks Range and the DeLong Mountains. Although sheep have been reported to have inhabited the Baird Mountains in the park as late as 1974 (Melchior, et al. 1976), recent surveys indicate that Dall sheep do not inhabit the park (NPS 1984a) nor does the park appear to contain prime Dall sheep habitat. However, small numbers of sheep sometimes inhabit the portion of the Baird Mountains that lies within the park.

Grizzly bears frequent moist tundra and shrub associations, and are found along rivers throughout northwest Alaska. Population estimates for grizzly bears range between 700 and 2,400 in the region (Darbyshire and Science Applications 1983), and between 26 and 63 bears within Kobuk Valley National Park (Melchior, et al. 1976). Grizzly bears are known to prey upon caribou and moose.

Black bears generally prefer forested areas to the open tundra zones used by grizzly bears. Black bears are known to inhabit the forested portions of the Kobuk River drainage, and sightings are common in the park. The number of black bears inhabiting the park is unknown.

Wolves, coyotes, and red fox inhabit the park. Wolves are predators of caribou and moose within the region and travel near migrating caribou in the spring and fall (Resource Analysts 1983). Some wolves appear to be permanent residents of the Kobuk Valley, while others appear to be transient, residing in the valley only during the winter months. Wolf dens have been observed within the park (Melchoir, et al. 1976).

Lynx are generally residents of spruce forests and depend on hare and ptarmigan populations for sustenance. Good habitat for lynx exists in the forested areas of the park.

Wolverine, ermine, river otter, marten, least weasel, and mink inhabit the park. The wolverine is the largest land-dwelling member of the weasel family and inhabits most of the state. The ermine (or short-tailed weasel) and the least weasel prey on rodents, insects, birds, and fish. Mink and river otter prefer areas near larger streams, lakes, or coastal areas. Marten inhabit old growth spruce forests.

Other mammals known to exist within Kobuk Valley National Park include the dusky shrew, red-backed vole, tundra vole, snowshoe hare, tundra hare, arctic hoary marmot, arctic ground squirrel, lemming, and porcupine. Beavers and muskrats are also in the Kobuk River drainages (Melchior, et al. 1976).

Eighty-three bird species have been identified (Melchior, et al. 1976), and other species are expected to occur within the park. Prime waterfowl nesting areas occur in the extensive wet lowlands in the Kobuk Valley. Northwest Alaska provides major breeding areas for migratory birds and encompasses a zone of interchange between the flyways of Asia and North America.

Raptors inhabiting the park include rough-legged hawks, marsh hawks, golden eagles, ospreys, merlins, and American kestrels. Willow ptarmigan and rock ptarmigan are common in the park. Both spruce and ruffed grouse are found within the area's woodlands (Melchior, et al. 1976).

Twenty-five species of fish are found within the Kobuk River drainage. Although all five species of Pacific salmon occur in the waters of the region, only chum, king, and pink salmon occur in the drainages of Kobuk Valley National Park. Chum salmon is the most abundant species of salmon in the region and is the most significant species for commercial and subsistence fisheries. The Salmon and Tutuksuk rivers are major spawning and production tributaries of the Kobuk River for chum salmon, ranking second and third,



# CARIBOU & MUSK OX

Cape Krusenstern  
National Monument

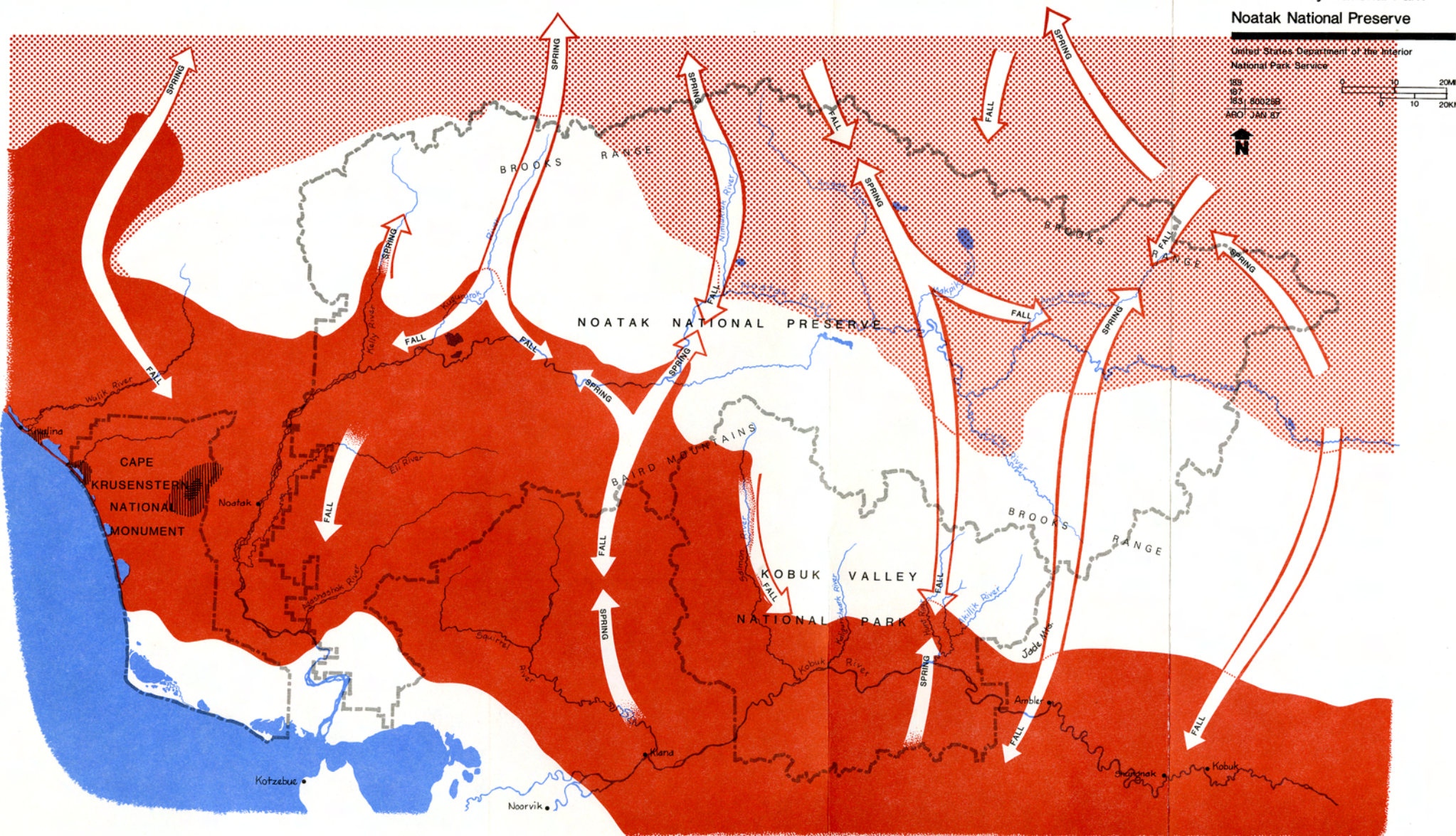
Kobuk Valley National Park

Noatak National Preserve

United States Department of the Interior  
National Park Service

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CARIBOU



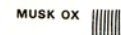
SUMMER



WINTER



MIGRATION ROUTES



SUMMER



WINTER

SOURCE: ALASKA'S WILDLIFE & HABITAT,  
ADF&G, 1973.





# DALL SHEEP & MOOSE

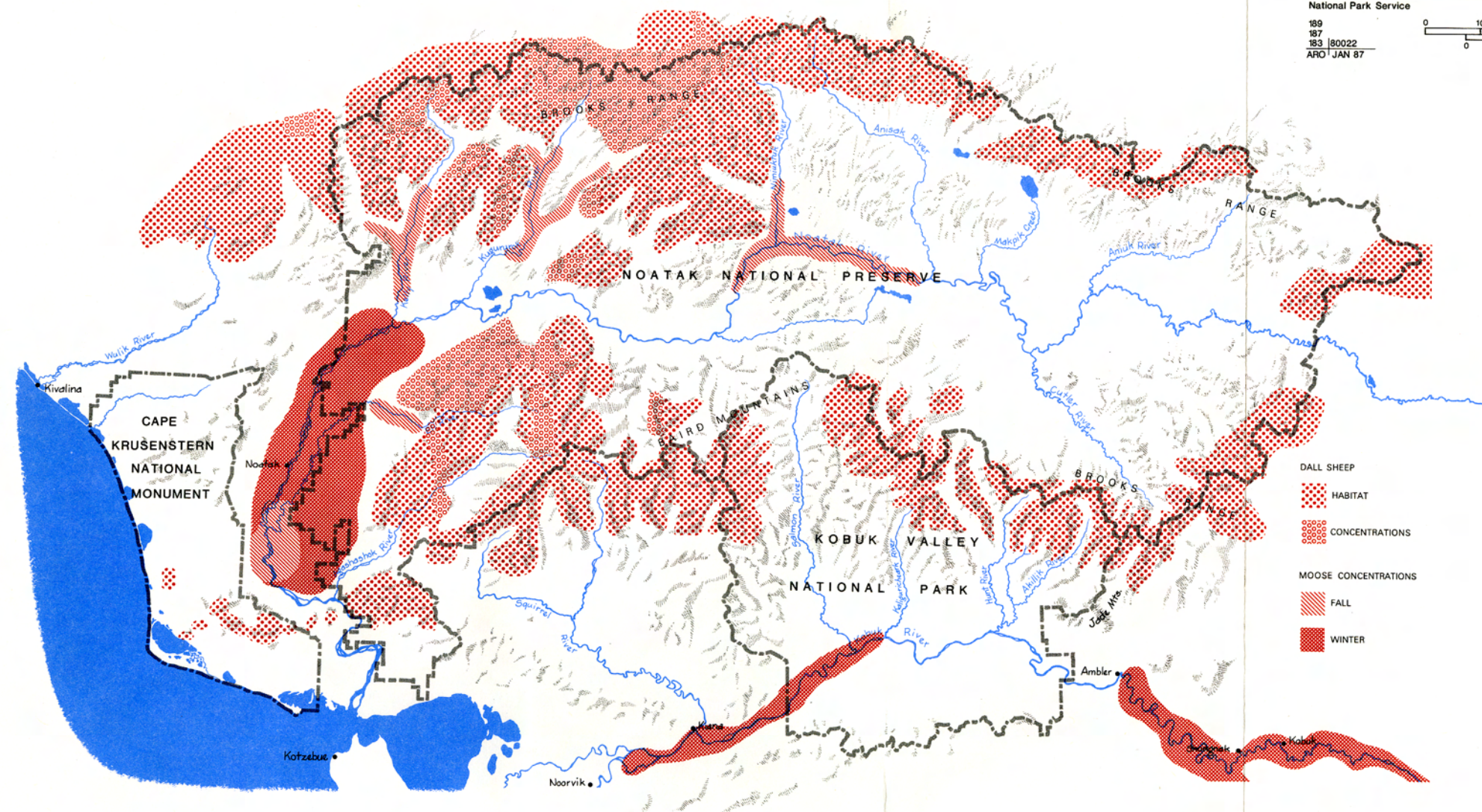
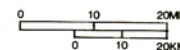
Cape Krusenstern  
National Monument

Kobuk Valley National Park

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- DALL SHEEP
- HABITAT
  - CONCENTRATIONS
- MOOSE CONCENTRATIONS
- FALL
  - WINTER

SOURCES: ALASKA'S WILDLIFE & HABITAT, ADF&G, 1973. ADDITIONAL DALL SHEEP RANGE DATA: F. SINGER, NPS, 1983.



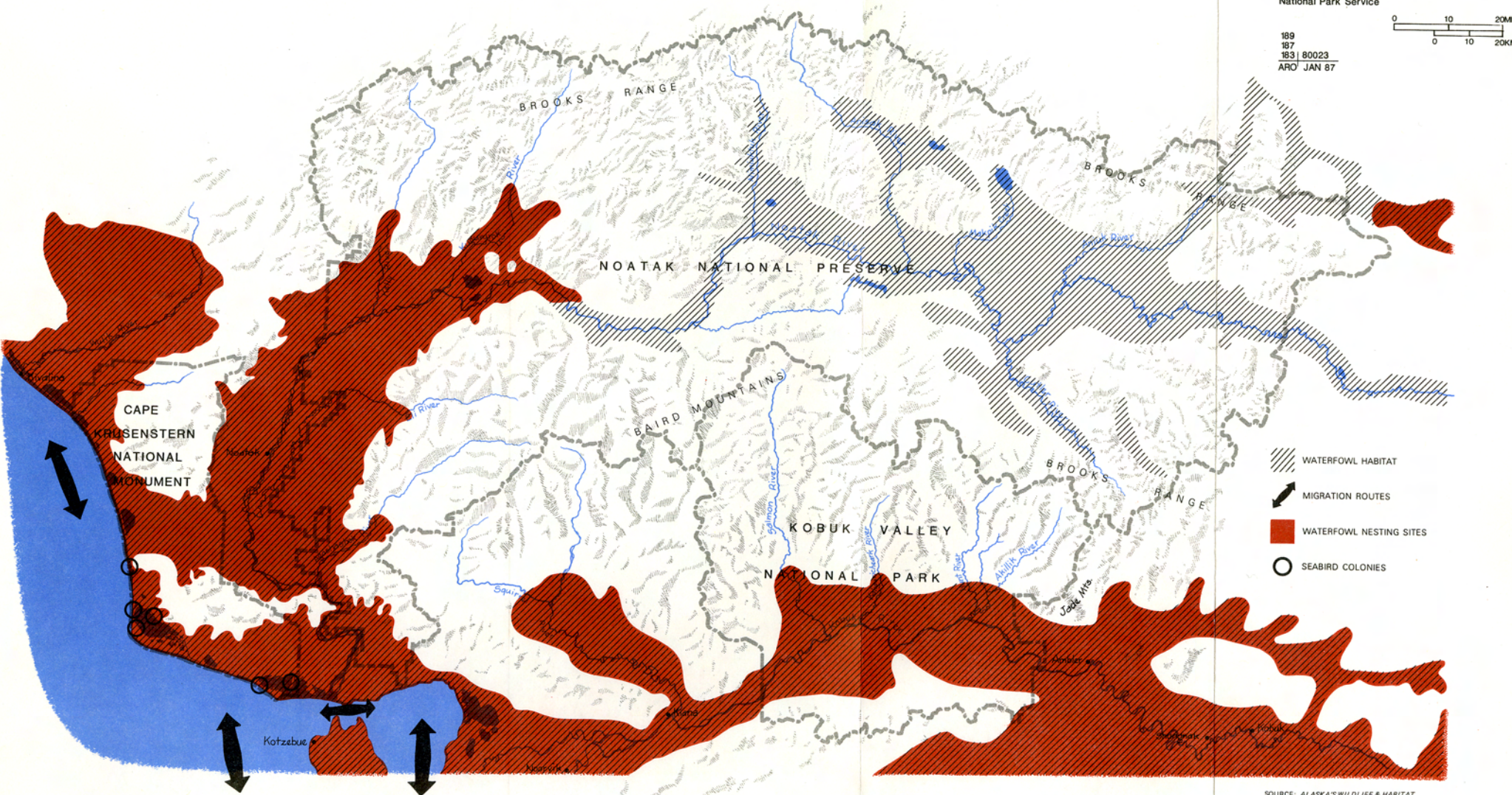
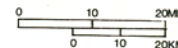


# SEABIRDS & WATERFOWL

Cape Krusenstern  
National Monument  
Kobuk Valley National Park  
Noatak National Preserve

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SOURCE: ALASKA'S WILDLIFE & HABITAT, ADF&G, 1973.





# SALMON

## Kobuk Valley National Park

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National Park Service

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--- PINK  
--- CHUM

{ SPAWNING AREAS

SOURCE: ALASKA FISHERIES ATLAS,  
VOLUME I, ADF&G, 1978.

ADDITIONAL INFORMATION BASED ON  
OBSERVATION OF NPS PERSONNEL, 1984.





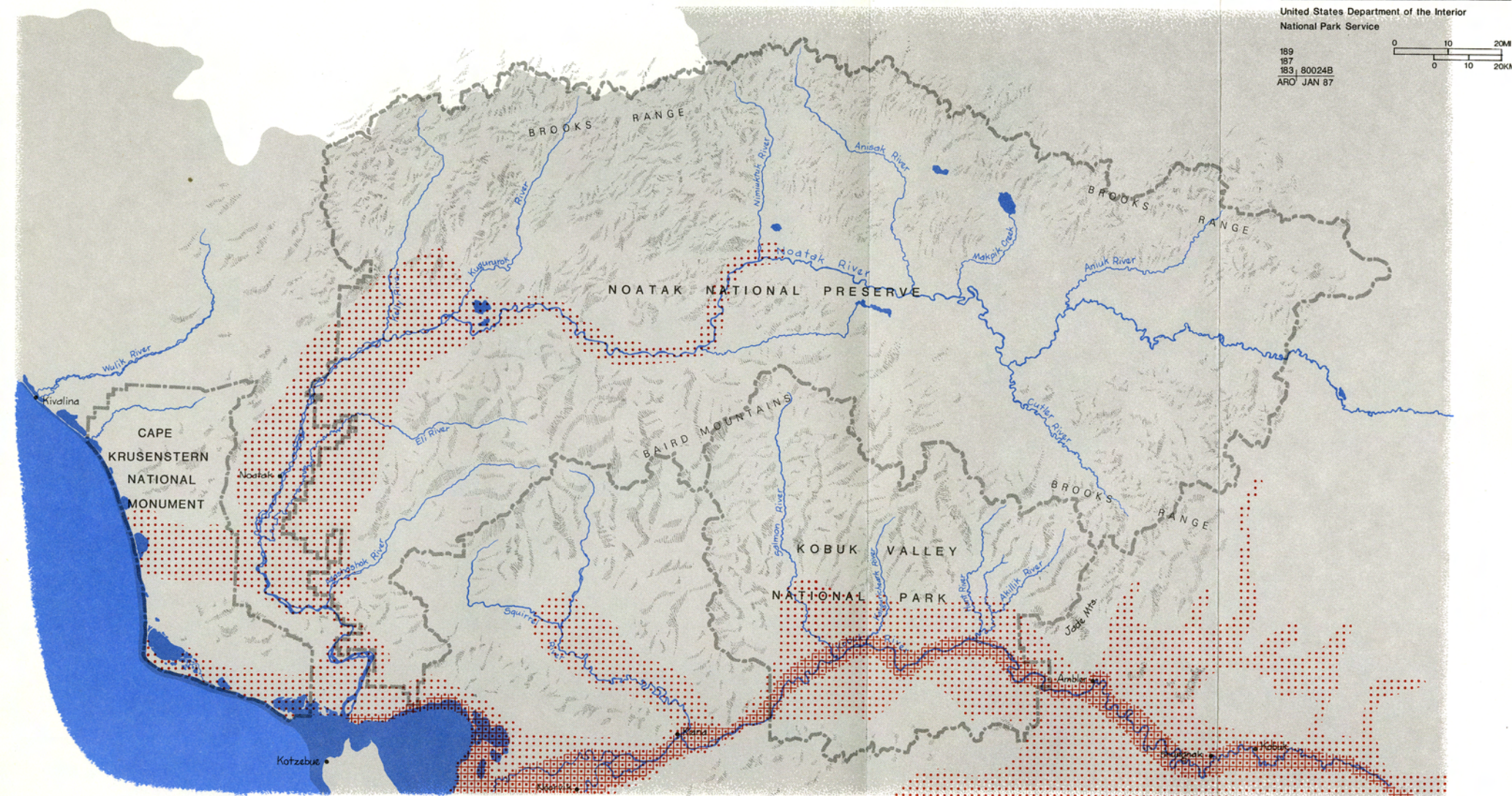
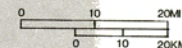


# FISHES

Cape Krusenstern  
National Monument  
Kobuk Valley National Park  
Noatak National Preserve

United States Department of the Interior  
National Park Service

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ARCTIC CHAR/DOLLY VARDEN

NORTHERN PIKE

SHEEPSH/BURBOT  
& NORTHERN PIKE

SOURCE: ALASKA'S FISHERIES ATLAS,  
VOLUME I, ADF&G, 1978.

THE RANGE OF FISH ON THIS MAP CONFORMS  
TO THE FISH "PRESENT" CATEGORY ON THE  
SOURCE LISTED ABOVE. THE "OCCASIONAL"  
CATEGORY IS NOT SHOWN ON THIS MAP.

GRAYLING & WHITEFISH PRESENT  
THROUGHOUT REGION







respectively, in production behind the Squirrel River to the west of the park (ADF&G 1984a).

Arctic grayling and arctic char are distributed throughout the waters of the region and the park. Most char in the region migrate from freshwaters to the ocean during the summer months to feed. They return to freshwaters in the fall to spawn.

Inconnu, or sheefish, inhabit the Kobuk and Selawik rivers. Sheefish overwinter in Hotham Inlet and Selawik Lake. After ice breakup, sheefish move upriver to spawning areas. Known spawning areas are located upriver from the village of Kobuk. Within the park sheefish inhabit only the Kobuk River.

Northern pike, whitefish, burbot, long-nosed sucker, slimy sculpin, and least ciscos inhabit rivers and lakes in the region and park.

No threatened or endangered animal species are known to inhabit the park. Arctic peregrine falcons may pass through the park during migrations (USF&WS 1984).

Vegetation. In Alaska the boreal forest generally reaches its northwestern limits on the south slopes of the Baird Mountains, which divide the valleys of the west-flowing Noatak and Kobuk rivers. While the Noatak basin is largely vegetated with tundra, the Kobuk Valley is partially forested and is representative of the broad transition zone between forest and tundra. The vegetation of the Kobuk Valley is of particular scientific interest because the tree line phenomena that occur in the park, the relationship of vegetation to the extensive sand dunes in the park, the proximity to the eastern end of the previously existing Bering Land Bridge, and the relationship of vegetation to human use of the Kobuk Valley for thousands of years (Melchior, et al. 1976).

Because the Kobuk Valley is in the transition zone between the more interior Alaska forested areas and the more northern and western tundra areas, both forest and tundra vegetational types are broadly represented in the park. The 25-mile-wide flat valley floor between the Waring Mountains on the south and the higher Baird Mountains on the north is characterized by treeless tundra expanses between forested lands. Forests occur on better drained areas along stream courses and on higher ground. This alternating tundra and forest pattern forms a mosaic across the valley. Spruce and balsam poplar grow in the lower and middle reaches of the river valleys that extend into the Baird and Waring mountains. Willow and alder thickets and isolated cottonwood grow up to the headwaters of rivers and streams. Alpine tundra covers the slopes and ridges of the the mountains.

Botanical studies have resulted in the identification of a number of basic vegetational types in Kobuk Valley National Park. The basic vegetational types within the park are forest and woodland, shrub, and tundra and heath type. Each vegetational type is composed of a number of plant species.

Four types of forest and woodland consist of combinations of white and black spruce, paper birches, cottonwoods, willows, alders, lichens, mosses, and other less prominent species. White spruce forests generally occur on well-drained slopes and stream banks below 1,000 feet in elevation. More open spruce woodlands occur in valley lowlands and flats. Open, lichen-carpeted woodlands grow on stabilized sand dunes and coarse glacial deposits; and cottonwood forests grow on gravel bars along streams (Melchior, et al. 1976).

Three shrub vegetational types have been identified within the park, which are principally composed of shrubs over three feet in height. Willow scrub occurs on gravel bars and stream and lake margins; Alder scrub occurs on drainageways and upper mountain slopes; and willow, alder, and young spruce occur on old burns as a successional stage (Melchior, et al. 1976).

The broad, relatively flat floor of the Kobuk Valley is covered by large treeless areas of tussock tundra and low, heath-type vegetation. Heath vegetation occurs in poorly drained areas in flats in the valley and mountains and is composed in part of dwarf birch, dwarf blueberry, Labrador tea, and mosses. Tussock tundra occurs on flat valley floors and consists principally of dwarf birch, and Labrador tea and clumps of sedges. Vegetated upper mountain slopes, ridges, and peaks are covered by dwarf birch, blueberry, and other species of alpine tundra vegetation (Melchior, et al. 1976).

Lightning and human-caused fires have affected the vegetation over much of the Kobuk Valley. Large areas of forest and tundra have burned. Plants that invade or become dominant in a recently burned area include willows, alders, and fireweed. In 1981 a fire burned the spruce woodland immediately west of the Great Kobuk Sand Dunes.

The three active sand dunes in the park (totaling approximately 20,500 acres) are sparsely vegetated. Two older dune fields in and to the east of the park (totaling approximately 200,000 acres) are currently vegetated, primarily with open woodlands. The phases of plant succession of the dune fields can be observed in the park, with some areas of the dunes having little or no vegetation and other areas heavily covered by white spruce, willows, and lichens.

A plant in the pea family, Oxytropis kobukensis, is found only along the middle section of the Kobuk River. This plant grows in sandy soils along the river, and on the three dune fields in the park (Melchior, et al. 1976). Research conducted in 1984 indicates that this plant is relatively abundant within its habitat in the park (pers. comm., Robert Lupkin 1984). Because of the discovery of the relative abundance of Oxytropis kobukensis, the U.S. Fish and Wildlife Service has recommended that it be removed from the candidate list of rare or endangered species. No other rare or endangered plants are known to grow within the park (pers. comm., Mike Amarol 1985).

### Cultural Resources

The Region. Northwest Alaska is not the trackless wilderness that many people perceive it to be. Humans have continuously explored, lived in, and used the resources of the region for more than 12,500 years.

It has been well established (Hopkins 1967) that the great continental glaciers of the last ice age locked up vast amounts of water as ice, lowering sea levels and creating a large land mass between Alaska and Siberia, called the Bering Land Bridge or Beringia. This land mass, more than 1,000 miles wide at one point, was above sea level from 25,000 to 14,000 years ago. Although the rising seas broke through this land mass about 14,000 years ago (Anderson 1981), the present sea levels were not reached until 4,500 years ago. Today the Bering Strait, about 90 miles wide, can be easily crossed (especially in winter when frozen) and is not really a barrier to human passage.

It was across the Bering Land Bridge and later across the strait itself that cultural groups entered northwest Alaska. As successive waves of immigrants arrived in the Arctic, earlier immigrants moved southward across North America. Other groups stayed to explore, settle, and adapt to Alaska and the Arctic.

The prehistoric record of northwest Alaska documents part of this process, although the prehistory of much of the area has not been thoroughly investigated. Two key sites, Onion Portage, in Kobuk Valley National Park, and Cape Krusenstern, in Cape Krusenstern National Monument, provide much of the information about the cultural sequence in the interior Arctic and northwest Alaska.

The archeological record reveals a complex sequence of cultural development and adaptation in northwest Alaska. The earliest people (Paleo-Arctic culture) arrived in the region 12,500 or more years ago (10500 B.C.). There are few traces of their presence. It is known that they came from northern Asia and were nomadic hunters and gatherers, living off the land and traveling in small groups. Unlike many later groups, these early people did not depend on sea mammal hunting for their subsistence but depended on caribou and other land animals.

The next wave of people apparently moved into northwest Alaska from the forested regions to the south and east. These Northern Archaic people arrived about 6,500 years ago (4500 B.C.). They apparently depended on caribou and fishing in rivers for their livelihood, staying inland and near the trees most of the time. Many archeologists believe that these people represent an Indian culture rather than an Eskimo culture.

About 4,200 years ago (2200 B.C.) arctic-oriented cultures again appeared in northwest Alaska. Either a new wave of people or new ideas came into Alaska from Asia. This Arctic Small-Tool tradition, so named because of their finely made stone tools, was a dynamic one, adapting to make efficient use of a wide range of arctic resources. The earliest culture of this tradition spread as far south as Bristol Bay and as far east as Greenland, occupying interior and coastal areas.

These people moved throughout arctic Canada over a long time span (the tradition lasted over 1,000 years). They were adept at living both on the coast and in the interior. Major settlements have been found near coastal areas, such as along the lower Noatak and the Kobuk rivers.

About 2,500 years ago (500 B.C.) people of the Arctic Small-Tool tradition and the related Norton tradition had shifted much of their emphasis to coastal living and marine resources. Norton settlements sprang up in most good coastal locations from the Alaska Peninsula around to a point east of the U.S.-Canada border. There are some indications that whaling had begun and was gaining importance. Interior resources, such as caribou, were still used extensively. Fishing with seine nets became a primary means of obtaining food. The later Inupiat people developed an advanced art style based upon ivory carving.

About 1,600 years ago (400 A.D.) a new cultural group appeared. It is not known whether these people came from Asia or developed from the earlier arctic peoples in Alaska. Whatever their origins, they developed the full Eskimo lifestyle of using marine resources such as seal, walrus, and whale, as well as interior resources such as caribou and musk oxen. These Northern Maritime tradition people developed from the Birnirk culture into the Western Thule culture, which spread all across the Arctic from Norton Sound to Greenland. From the Western Thule culture came the modern Inupiaq culture (identifiable in the archeological record around 1200 A.D.). The Inupiat people used, and may have developed, advanced fishing and hunting techniques (such as the drag float and the sinew-backed bow). The first evidence for the use of dogs to pull sleds dates to about 1500 A.D. Before this time, sleds were pulled by people, and dogs were used as pack animals. Some people moved inland full-time (for example the Arctic Woodland culture on the Kobuk River) and developed specialized lifestyles. Extensive trading networks and communications were maintained over northwest Alaska.

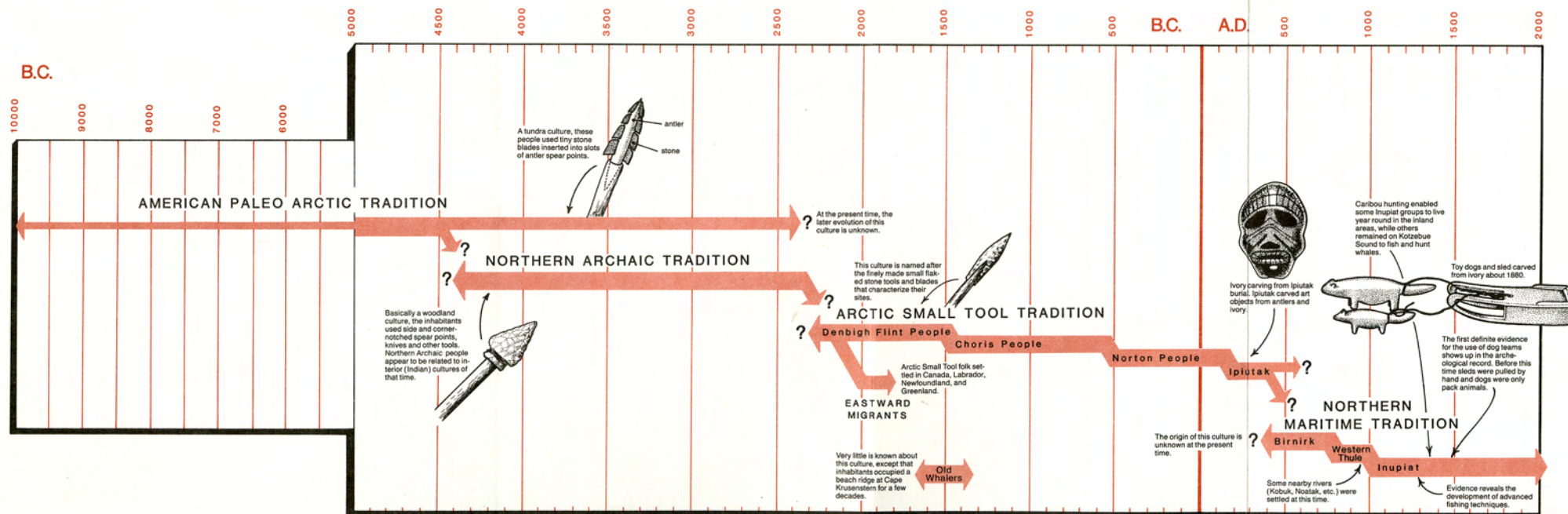
The traditional lifestyles of the Inupiat people remained fairly stable until about 1850 A.D. Russian trade goods had reached Northwest Alaska during the 18th century through trade across the Bering Strait with Siberian people but had not significantly affected local people. After 1850 Eskimo culture began to change significantly in response to outside contact.

In the late 1800s contacts with the outside world increased substantially. The fur trade expanded in economic importance and the use of sophisticated dogsledding methods became common. These concurrent developments provided greater mobility and resulted in people spreading out over larger areas in winter and completing the abandonment of many of the larger villages. It was not until schools, post offices, and trading posts were set up around the turn of the century (1900) that large villages were again established (Anderson 1981).

The Park. The Kobuk River Valley has been lived in and used for at least 12,500 years. People of all of the major cultural groups that have lived in northwest Alaska have left evidence of their presence at numerous sites in the park. These sites are concentrated along the Kobuk River and its tributaries. Detailed archeological investigations in five sites in the park area were made by J.L. Giddings in the 1940s, and he obtained oral reports on eight other sites (Giddings 1952). Extensive excavations were conducted in the 1960s at Onion Portage. In subsequent years other sites have been discovered in the Baird Mountains and along the Kobuk River.

# CULTURAL SEQUENCE IN NORTHWEST ALASKA

United States Department of the Interior  
National Park Service



(Adapted from Anderson, 1961: 56)





# CULTURAL RESOURCES

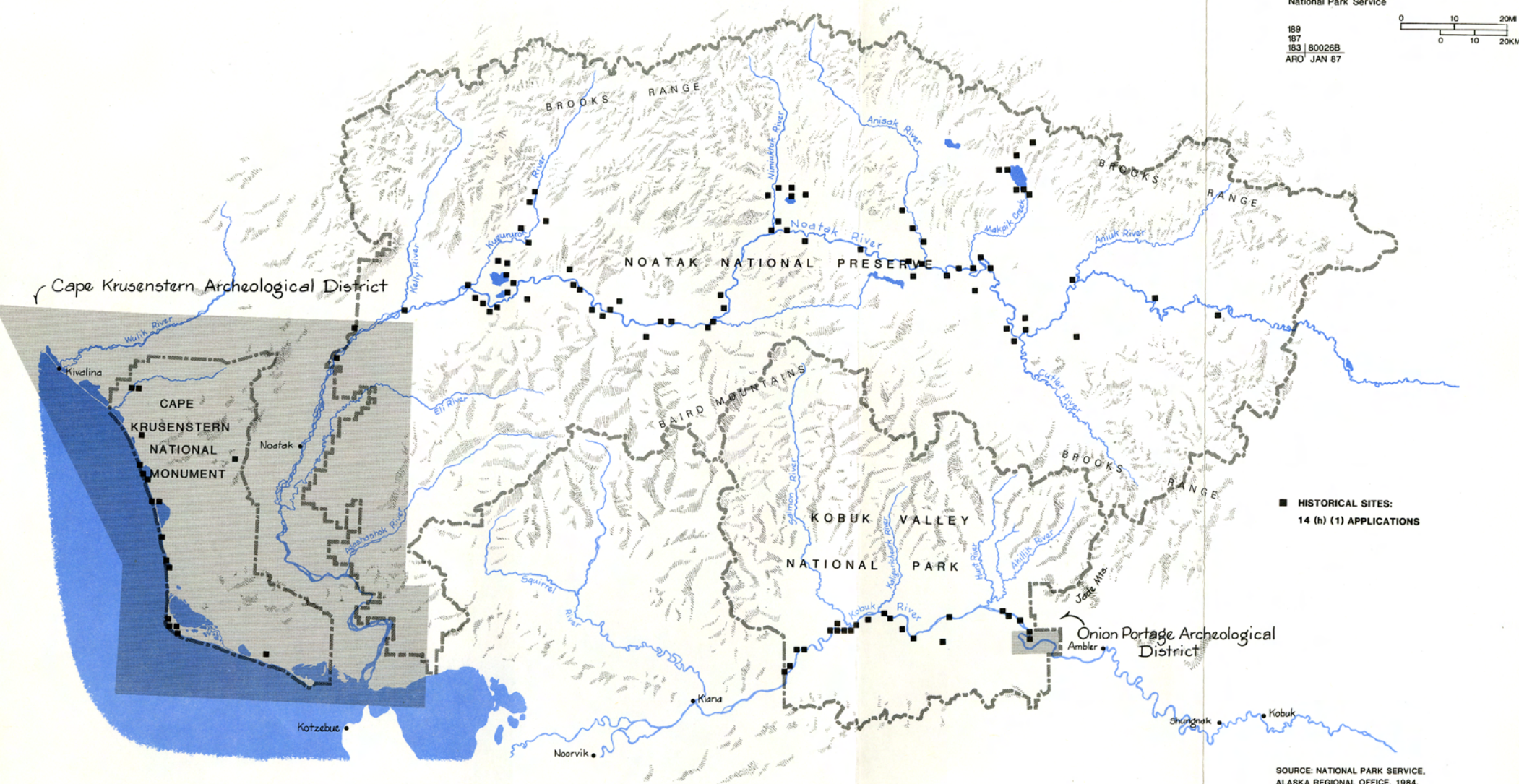
Cape Krusenstern  
National Monument

Kobuk Valley National Park

Noatak National Preserve

United States Department of the Interior  
National Park Service

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As yet, only the highlights of the prehistory of the park have been revealed. This is because most of the known archeological sites in the Kobuk River Valley are the remains of mostly winter settlements (Anderson 1977). Other aspects of the lifeways of the prehistoric people of the valley, especially those activities that took place away from the Kobuk River, are still basically unknown and remain to be investigated. However, the broad outlines of the picture are known through such sites as Onion Portage in the park and Cape Krusenstern 150 miles to the west of the park.

The Onion Portage site, on the banks of the Kobuk River on the eastern side of the park, is one of the most important archeological sites in Arctic America. Its stratified cultural layers document a progression of camps spanning at least 12,500 years (Anderson 1981). Onion Portage is still in use as a major caribou hunting site.

The major excavation at Onion Portage contains 70 discrete occupation layers that surpass in number nearly every other site in North America. Each layer contains the remains of a single seasonal hunting camp, thus giving archeologists a unique opportunity to document whole sets of artifacts made by single social groups. This site thus provides a major comparative collection (now housed in the Haffenreffer Museum at Brown University in Rhode Island) to which artifacts from most other archeological sites in northwestern Alaska are compared. Other sites at Onion Portage may contain remains from multiple occupations. The work by Giddings and Anderson at Onion Portage led to the identification of five heretofore unknown prehistoric cultures of northwestern Alaska. Large portions of the site remain unexcavated. Onion Portage has been placed on the National Register of Historic Places as an archeological district at the level of national significance.

The earliest occupants (12,500 years ago) of Onion Portage lived in a treeless environment. Spruce trees did not appear in the middle Kobuk Valley until about 7,000 years ago and alders first appeared about 1,000 years later (Melchior, et al. 1976). These early hunters of the Paleo-Arctic culture, which is represented at Onion Portage by the Akmak and Kobuk people, relied primarily on big game, mostly caribou, for their subsistence. Evidence of the Paleo-Arctic culture ended at Onion Portage about 8,000 years ago (6,000 B.C.).

After a gap of almost 2,000 years, during which no people appear to have occupied the Onion Portage area, a different cultural group, the Northern Archaic tradition (or the Palisades and Portage cultures) occupied the Onion Portage area. Their traditions were derived from the spruce-forested regions to the south and east. They could well have been Indians from the interior regions of Alaska. Their camps show definite evidence of fishing as a major subsistence activity.

About 4,000 years ago (2000 B.C.) arctic-oriented peoples (Arctic Small-Tool tradition) again moved into the Kobuk Valley. They and their descendants developed a lifestyle that enabled this culture to spread over most of the Arctic, from Norton Sound to Greenland. While mainly coastal in orientation, regional and local specializations were present. The people in the Kobuk Valley undoubtedly utilized local resources such as caribou and fish. They

also maintained strong ties to the coast and marine resources. They probably made seasonal journeys downriver to the coast for trading and marine mammal hunting. From about 1,500 to 2,000 years ago (0 A.D. to 500 AD), this coastal orientation becomes even more evident in the archeological record.

From about 1,000 to 1,500 years ago (500 A.D. to 1000 A.D.), the middle and upper portions of the Kobuk River were generally unoccupied, perhaps because of a decline in the caribou population (Anderson 1977). During this interval native peoples of Indian descent (possibly Koyukon) used Onion Portage intermittently for caribou hunting.

By about 800 years ago (1200 A.D.) arctic-oriented people once again occupied the valley. About 25 miles downriver from Onion Portage, at Ahteut, an extensive series of old housepits provide the pivotal dating and description for the Arctic Woodland culture. This culture appears to have been unique to the Kobuk River region and contains the adaptations of coastal Eskimos to the forested and riverine environment of the Kobuk Valley. By 1400 A.D., the Arctic Woodland culture had developed a wide range of fishing techniques and had begun to practice a seasonal round of subsistence activities that was basically the same as those followed until historic times. Settlements sprang up in the middle reaches of the river for wide-ranging winter caribou hunting in the Kobuk River Valley and summer salmon fishing along the Kobuk River. The earliest of the sites were located where the people were able to conduct winter hunting at the same place they could conduct their summer salmon fishing. Such sites as Ahteut, Onion Portage, and the confluences of the Salmon River, the Hunt and Ambler rivers all had winter houses located on or near long sand bars along bends in the river, where seining for salmon would have brought fine yields. The site at Ambler Island, dated 1,750 A.D., shows the long continuity of the Arctic Woodland culture and the sophisticated adaptation to inland life along the Kobuk River.

The Eskimo lifestyle of the middle Kobuk River appears to have remained stable during the early 19th century. Sometime after 1850, the caribou populations began to decline (as they had periodically in the preceding thousands of years) and again emphasis shifted to the seacoast. By then, however, the influence of Western civilization was being felt fairly strongly and the people of the Kobuk Valley faced new adaptive challenges.

Exploration of the Kobuk River area by whites was preceded by 150 years of trade and contacts along the coasts of northwest Alaska. Russian trade goods reached people of the Kobuk region through extensive trade ties across the Bering Strait between eastern Siberian native people and those of northwestern Alaska. The first western exploration consisted of vessels skirting the coast in the 18th century.

In 1883 George M. Stoney traveled about 85 miles up the Kobuk River. In 1884 John C. Cantwell and Stoney made independent explorations of the river. Cantwell went as far as Shungnak that year and in 1885 made it all the way to Walker Lake. No remains of these early explorations are known to exist within the park.

With the establishment of a mission and school at Kotzebue in 1897 by the California Yearly Meeting of Friends, great changes came to the people of the Kobuk. In 1898 as many as 1,200 mining prospectors made their way up the Kobuk in a search for gold during the months of July and August and scattered along the entire river (Anderson 1977). Most remained about a year and their influence was felt all along the river. Some remains of this period are reported to exist within the park in the vicinity of the mouth of the Hunt River.

Some of the miners established a camp at Shungnak; a post office was set up, and in 1905 the California Yearly Meeting of Friends opened a mission and school. Almost overnight the village had a population of about 150, as local people took advantage of the opportunity for schooling for their children. Another miners' depot was established on the Squirrel River. It was named Kiana and soon became a permanent village with school, stores, and post office. Although many adaptations were made by the native people of the region with the arrival of Western influence, many of the traditional activities and beliefs of the people remained intact into the 20th century.

#### Current Public Uses

It is estimated that 1,105 people visited the park during the months of June through September in 1983. Of this total it is estimated that more than 90 percent was by residents of northwest Alaska (Cosentino 1984, based on reports of park staff). Regional residents constitute an even greater percentage of park use if the winter and spring seasons are considered. Regional residents principally use the park for subsistence activities, travel between communities and to native allotments, and for recreation. Fall caribou hunting, particularly in the vicinity of Onion Portage, is by far the largest use of the park at present; residents of nearly the entire region participate.

During the 10-year life of this general management plan use of the park by local residents is expected to increase by three percent per year, and use by out-of-region visitors is expected to increase by ten percent per year.

Access and Transportation. The Kobuk River is a major regional transportation corridor that has probably been used as long as the region has been inhabited. During the ice-free period (late May to early October), boats are used for personal travel and for transportation of goods to supply the five villages on the Kobuk River. Local residents use boats for summer and fall transportation to reach other villages, hunting and fishing sites, and native allotments and other private lands.

In the summer and fall of 1983 as many as 471 sightings of boats were recorded as they passed by the ranger stations on either end of the park. Nearly all of these boats were motorized and were operated by residents of the region who were engaged in hunting and fishing activities or intraregional travel. Over 70 percent of the boat traffic in 1983 occurred during the peak of the caribou migration period, from the end of August to the middle of September, when caribou cross the Kobuk River. More than half the boats entering the park were destined for Onion Portage, the major site of caribou hunting in the region (Cosentino 1984, based on field reports of park staff).

It has been estimated that 25 to 75 nonregional residents visited the park each year between 1983 and 1985. Most of these visitors to the park used nonmotorized boats. Some floated part of the way through the park on the Kobuk River and were then picked up by floatplane.

Several barges loaded with supplies for the villages along the Kobuk are taken upriver each summer season. All other supplies to the villages are shipped by aircraft. Barges destined for Ambler, Shungnak, or Kobuk go through Kobuk Valley National Park. Some barges returning downriver to Kotzebue stop near Onion Portage at Jade Creek to have jade boulders loaded on for delivery to Kotzebue. These boulders are mined at the NANA Regional Corporation mine on the south flanks of the Jade Mountains and are transported on sleds to the banks of the Kobuk River during the winter on a winter trail.

When the ice becomes sufficiently thick on the Kobuk River in the late fall, vehicles use the river as a highway. The state of Alaska funds the marking of winter trails throughout northwest Alaska. Trails are marked with spruce poles and branches and occasionally with reflective signs. A marked trail begins at Kotzebue, crosses Hotham Inlet, and goes up the Kobuk River. In late spring the trail is plowed of snow as far up as Kiana to the west of the park. Short sections of the trail are marked across the land on long, meandering bends of the river, shortening travel distances. A 2-mile-long marked, winter trail traverses the bluffs north of Onion Portage, which shortens the travel distance by about 5 miles.

Frequent winter travel occurs between the villages of Noorvik, Kiana, and Selawik, which are located to the west of the park. Winter travel is also frequent between the villages of Ambler, Shungnak, and Kobuk, to the east of the park. Winter travel through the park to these two sets of villages is much less common. Most winter travel between the villages of Kiana and Ambler occurs on the frozen Kobuk River.

Snowmachines are used for subsistence hunting and trapping in the park, particularly along the Kobuk River and the broad lowlands.

Aircraft are used to a limited degree for recreation and subsistence gathering in the park. A few recreational users have chartered with local air-taxi services to be dropped off or picked up in the park. Others fly personally owned aircraft into the park. Aircraft are used by a few local residents for harvesting berries in the park.

No roads or constructed airstrips currently exist within Kobuk Valley National Park.

Pursuant to section 17(b) of the Alaska Native Claims Settlement Act, easements have been reserved on native lands where necessary to provide for continued public access to public lands. The following 17(b) easements lie within the boundary of Kobuk Valley National Park on NANA-owned land in the Onion Portage area:

EIN 1 - A 25-foot-wide winter trail easement for the Kotzebue - Shungnak 200-mile-long trail, which is the primary winter access corridor through the park. Allowable uses include small ATVs under 3,000 pounds gross vehicle weight.

EIN 8 - A 50-foot-wide trail easement from the Kobuk River near Onion Portage northerly to an isolated block of land managed by the BLM. Winter uses allowed on this easement include travel by small and large ATVs, track vehicles, and four-wheel-drive vehicles. Summer uses include small ATVs under 3,000 pounds gross vehicle weight.

EIN 9 - A 1-acre site easement that serves as a trailhead for EIN 8.

The Land Status map in the land protection plan shows the locations of these 17(b) easements. Maps and descriptions of 17(b) easements are available at NPS offices in Kotzebue and Anchorage. There may be additional 17(b) easements designated within the park in the future as additional lands are conveyed to NANA. The management of 17(b) easements is discussed in the "Access and Circulation" section of the general management plan.

National Park Service regulations (43 CFR 36.11) specify that for public use of the park : the entire park is open to the landing of fixed-wing aircraft (although aircraft use is generally prohibited for subsistence taking of fish or wildlife), and all waters in the park are open to the use of motorized boats; snowmachines can be used throughout the park (during periods of adequate snowcover or frozen river conditions) for traditional activities and for access to villages and homesites; the use of off-road vehicles, other than snowmachines, is generally prohibited; and the park is open to the use of nonmotorized surface transportation, such as dogs, horses, and other pack animals (see the "Access and Circulation" section in chapter III for proposed closure to pack animals other than dogs). These regulations also provide for access across park units. The superintendent may restrict access within the park in accordance with section 13.30 of these regulations.

The use of aircraft for subsistence taking of fish or wildlife is generally prohibited, although in extraordinary cases the superintendent may issue permits for the use of aircraft for subsistence harvests of fish and wildlife. The use of snowmachines, motorboats, dog teams, and other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses is allowed, subject to certain restrictions (36 CFR 13.45 and 13.46).

Appendix I is a summary of the laws and regulations that apply to access within and through national park system units in Alaska.

### Subsistence Uses

The Kobuk River and its broad, mountain- rimmed valley have attracted and supported man for more than 12,500 years. Kobuk Valley National Park encompasses a portion of a major migration route of the Western Arctic Caribou Herd; a river system rich in salmon, whitefish, sheefish, and other fish; a variety of edible berries, roots, and other vegetation; migratory waterfowl; large mammals such as moose, black bear, and grizzly bear; and a

variety of furbearers. These resources and others continue to draw human use and to support local social and cultural traditions.

Modern subsistence users of Kobuk Valley National Park are predominantly Inupiat Eskimos, although a number of non-natives in the general area have historic ties to resource use within the park. The native inhabitants are descended from a long line of aboriginal occupants of the area. They are grouped under the general heading Kuuvangmiit, with subgroups being identified by more specific place names.

Today the subsistence use of Kobuk Valley National Park is largely conducted by residents of the villages of Kobuk, Shungnak, Ambler, Kiana, Noorvik, and Kotzebue. The combined populations of these communities are estimated at 4,520 persons, with Kotzebue contributing 66 percent of this total (Alaska Department of Community and Regional Affairs 1984). Several local people not living in a village also engage in subsistence activities in the park. The village of Selawik, in addition to the above-mentioned villages, is also authorized to engage in subsistence activities in the park.

Subsistence technologies and practices are dynamic. Muscle power has, in part, been replaced or supplemented by machine power. The snowmachine has become the primary mode of winter surface travel, although dog teams continue to have limited use. Boats constructed of wood, metal, or fiberglass, and powered by large outboard motors, have virtually made the paddle-driven skin boat and plank poling boat things of the past. These and other technological advancements, such as CB radios, chainsaws, powered ice augers, and high-powered rifles, have been incorporated into the subsistence regime.

In response to economic, social, and technological changes, there have been alterations in subsistence strategies. An individual or a small number of people can usually accomplish hunts and other activities that once required cooperative efforts of many participants. The time and effort once required to obtain food for dog teams are now directed toward acquiring cash to purchase and support mechanical vehicles. Wage employment and schooling tend to constrain the time that can be allotted to subsistence, so that harvest activities often occur in short periods of intense activity rather than in long-term, sustained subsistence efforts. There is also the tendency for smaller numbers of people to carry out subsistence harvests for their families, while other family members pursue wage-earning employment or offer other types of support services.

Subsistence continues to provide substantial economic support for local residents. Food obtained by hunting and fishing activities is, in varying degrees, a major contributor to the local diet. Without this source of food many families would find it difficult, if not impossible, to purchase the supplies necessary to live in northwest Alaska. Within the park a limited amount of trapping provides residents with furs, which can either be used for personal clothing or be converted into cash for the purchase of necessary subsistence tools or other items. Birchbark and spruce roots are harvested for the construction and sale of baskets. Berries, roots, and other edible vegetation help to round out the diet. Wood taken from the park and surrounding areas provides fuel for heating camps and homes during the long, cold winters.



Subsistence serves not only as an economic support but also as a cultural and social focus of the local residents. Land and resource use is directly tied to cultural history, spiritual beliefs, sharing patterns, status, territoriality, and value systems. The participation in and identification with subsistence pursuits is a unifying force in the local culture.

The people of northwest Alaska use an immense subsistence territory, of which Kobuk Valley National Park is only a small, although important, part. Most subsistence pursuits occur across the landscape without regard for political boundaries. Depending on such variables as weather, wildlife movements, surface conditions affecting travel, and changing socioeconomic conditions, an activity that is intensively pursued one year in a specific location may be light or even absent in that location the following year.

The following table presents a summary of the annual subsistence cycle that occurs within Kobuk Valley National Park.

Table 3  
Subsistence Activities in Kobuk Valley National Park

Eastern Portion of the Park

<u>Spring</u>	<u>Summer</u>	<u>Fall</u>	<u>Winter</u>
Hunting camp	fishing camp	fishing camp	hunting camp
Caribou hunting	caribou hunting	caribou hunting	caribou hunting
Bear hunting	gill-net fishing	moose hunting bear hunting	fur-animal hunting and trapping
Waterfowl	hook-and-line fishing*	waterfowl hunting	ptarmigan hunting
Muskrat hunting	edible plant gathering	gill-net fishing	hare hunting
Gill-net fishing		hook-and-line fishing	birchbark shipping and wood cutting
		edible plant gathering	
		berry picking	

Western Portion of the Park

<u>Spring</u>	<u>Summer</u>	<u>Fall</u>	<u>Winter</u>
Hunting camp*	fishing camp	fishing camp	caribou hunting*
Bear hunting*	caribou	caribou hunting	fur-animal trapping*
Waterfowl hunting	seining*	seining*	ptarmigan hunting
	gill-net fishing	gill-net fishing	
	hook-and-line fishing*	moose*	hare hunting
	edible plant gathering*	hook-and-line fishing	house log cutting
	edible plant gathering		

Source: National Park Service 1977

\*Denotes activity for which the park is a key subsistence area

The Onion Portage area is an important caribou hunting site in the late summer and fall, as caribou cross the Kobuk River on their southerly fall migration. Residents of all the villages on the Kobuk River and residents of Kotzebue participate in the harvest at Onion Portage.

Recreational Uses. Very limited amounts of recreational use by out-of-region visitors occur within Kobuk Valley National Park. It is estimated that 25 to 75 nonregional recreational users have visited the park each year since the park's establishment in 1980. Most of these recreational users float through the park on the Kobuk River in nonmotorized boats. Some start at the headwaters of the Kobuk in Gates of the Arctic National Park and Preserve, while others begin their trips in Ambler, Shungnak, or Kobuk. The Great Kobuk Sand Dunes is the primary destination of most nonregional recreational users of the park. A few visitors fly their own airplanes to the park, mainly for sportfishing at the mouth of the Salmon River and other tributaries to the Kobuk; and others have chartered with local guides to take them by boat into the park for sportfishing for salmon, sheefish, and other fish species (Cosentino 1984, based on field reports of park staff). A few visitors may be chartering with local air-taxi services to be flown into the middle section of the Salmon River, and then floating down the Salmon and Kobuk rivers to Kiana. Sport hunting is legislatively prohibited in the park.

Regional residents also engage in recreational activities in the park. Recreational activities are frequently associated with subsistence activities. Local residents often go to the mouths of the Kallarichuk and Salmon rivers to fish with hook and line (Cosentino 1984, based on field reports of park staff).

Commercial Uses. Commercial services are available in the region for facilitating use of Kobuk Valley National Park. Air charter companies are located in Kotzebue, Ambler, Kiana, and other villages in the region. Boat charters and guiding services may be available in the villages for entry into the park. Lodges in Ambler and Shungnak, on the eastern side of and upriver from the park, can accommodate small numbers of visitors. Limited amounts of food items, merchandise, gasoline, and other goods can be purchased in the villages.

Twenty-eight companies obtained commercial use licenses from the National Park Service in 1984 for providing services within Kobuk Valley National Park; however, only three of these companies reported conducting business within the park in 1982, and only two reported conducting business within the park in 1983. These companies offer services in air charters, float trips, guided sportfishing, and other recreational services.

The park is closed to mineral entry and location (ANILCA, section 206). No valid mining claims exist within the park.

